



Special Environmental Analysis

for the Department of Energy, National Nuclear Security Administration



**Actions taken in Response to the
Cerro Grande Fire
at Los Alamos National Laboratory,
Los Alamos, New Mexico**



September 2000
U.S. Department of Energy
Los Alamos Area Office
Los Alamos, New Mexico

COVER SHEET

Responsible Agency:

U.S. Department of Energy (DOE), National Nuclear Security Administration

Title:

Special Environmental Analysis for the Department of Energy, National Nuclear Security Administration, Actions Taken in Response to the Cerro Grande Fire at Los Alamos National Laboratory, Los Alamos, New Mexico

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Abstract:

The U.S. Department of Energy (DOE), National Nuclear Security Administration, is issuing this special environmental analysis (SEA) to document its assessment of impacts associated with emergency activities conducted at Los Alamos National Laboratory (LANL), Los Alamos County, New Mexico, in response to major disaster conditions caused by the recent wildfire known as the Cerro Grande Fire. This wildfire burned about 7,650 acres (ac) (3,061 hectares [ha]) within the boundaries of LANL and about an additional 35,500 ac (14,200 ha) in neighboring areas. As a result of this wildfire event, DOE identified the need to take actions on an emergency basis to protect human life and property. DOE considered that its actions should not just be protective of the lives of its employees, contractors, and subcontractors, but also the lives of all people living and working in the LANL region. DOE also considered that its actions should not just protect property belonging to the U.S. Government, but also the properties of neighboring and downstream landowners and residents. DOE would normally prepare an environmental impact statement (EIS) in compliance with the *National Environmental Policy Act of 1969* (NEPA), as amended, to analyze potentially significant beneficial or adverse impacts that could occur if a proposed action(s) was implemented. However, because of the urgent nature of the actions required of DOE to address the effects of the Cerro Grande Fire as it burned over LANL and the need for immediate post-fire recovery and protective actions, DOE had to act immediately. DOE was, therefore, unable to comply with NEPA in the usual manner. DOE thereby invoked the Council on Environmental Quality's (CEQ's) emergency circumstances clause of its NEPA Implementing Regulations (40 CFR Part 1506.11) and the emergency circumstances clause of DOE's own NEPA implementing regulations (10 CFR Part 1021.343). This SEA provides the reader with an assessment of the impacts that have resulted because of actions undertaken by DOE (or undertaken on the behalf of DOE by other parties at DOE's direction or with DOE funding) to address a major disaster emergency situation. The SEA includes descriptions of the actions, the resulting impacts from the actions, mitigation measures taken for these actions that render their impacts not significant or that lessen the adverse effect of the actions, and an analysis of cumulative impacts. Unlike an EIS produced in the course of routine NEPA compliance, this SEA does not include an impact assessment of alternative actions that DOE could have taken to meet its purpose and need for action. Nor does it include an assessment of the No-Action Alternative. Furthermore, DOE will not issue a formal record of decision based on this SEA analysis. Actions not included in this SEA analysis will be the subject of other NEPA reviews and analyses.

SUMMARY

The U.S. Department of Energy (DOE), National Nuclear Security Administration, is issuing this special environmental analysis (SEA) to document its assessment of impacts associated with emergency activities conducted at Los Alamos National Laboratory (LANL), Los Alamos County, New Mexico, in response to major disaster conditions caused by the recent wildfire known as the Cerro Grande Fire. This wildfire burned about 7,650¹ acres (ac) (3,061 hectares [ha]) within the boundaries of LANL and about an additional 35,500 ac (14,200 ha) in neighboring areas. DOE's emergency response to the threat of this fire began with certain preventative actions undertaken immediately before the wildfire entered LANL boundaries in early May 2000. DOE's subsequent actions include those taken to suppress the fire while it burned within LANL boundaries, as well as post-fire activities taken to address the extreme potential for erosion and flood damage at LANL and properties downstream from the facility.

As a result of this wildfire event, DOE identified the need to take actions on an emergency basis to protect human life and property. DOE considered that its actions should not just be protective of the lives of its employees, contractors, and subcontractors, but also the lives of all people living and working in the LANL region. DOE also considered that its actions should not just protect property belonging to the U.S. Government, but also the properties of neighboring and downstream landowners and residents. These end goals were approached through direct fire suppression and fire control actions; through the subsequent restoration of LANL facilities and structures to accommodate the resumption of human occupancy; and through a wide variety of actions undertaken to reduce the potential for significant storm water flood damage, including revegetation efforts and the development of constructed storm water control features. This SEA discusses all of these actions in detail in later sections.

DOE would normally prepare an environmental impact statement (EIS) in compliance with the *National Environmental Policy Act of 1969* (NEPA), as amended, to analyze potentially significant beneficial or adverse impacts that could occur if a proposed action(s) was implemented. However, because of the urgent nature of the actions required of DOE to address the effects of the Cerro Grande Fire as it burned over LANL and the need for immediate post-fire recovery and protective actions, DOE had to act immediately. DOE was, therefore, unable to comply with NEPA in the usual manner. DOE invoked the Council on Environmental Quality's emergencies provision of its NEPA Implementing Regulations (40 CFR Part 1506.11) and the emergency circumstances provision of DOE's own NEPA implementing regulations (10 CFR Part 1021.343(a)).

The time frame encompassed by this SEA is from the initiation of fire control measures in the first week of May 2000 until the end of November 2000. The reason for the

¹ This number of acres is an estimate based on data derived from the Burned Area Emergency Rehabilitation (BAER) Team Report (BAER 2000). It does not include DOE-administered lands in Rendija Canyon since these are not part of LANL. Any differences in acres affected among the BAER Report, other published sources, and this document are the result of data entry variations or rounding differences and are not intended to indicate significant differences.

extended time frame is that rain typically falls in Los Alamos County from about June through October, with over half of the annual rainfall amounts usually occurring during the months of July and August. Depending upon actual weather conditions, the completion of some of the activities planned for wetland and floodplain locations might be delayed until the rainy season has abated and site conditions allow the work to proceed to completion. Additionally, after review of actual rain conditions, some additional work may be required to prepare the LANL facility for subsequent seasonal precipitation.

Decisions to undertake actions have already been made by DOE through a working team known as the LANL Emergency Rehabilitation Team (ERT). The ERT consists of teams from both the University of California (UC) (as the management and operations contractor for LANL) and the U.S. Army Corps of Engineers (USACE), working jointly in support of DOE. USACE worked under an Interagency Agreement with DOE to construct engineer-designed storm water control structures in the field (DEAI04-00AL79799). The ERT evaluated and estimated the impacts from the Cerro Grande Fire; identified and designed appropriate mitigation measures for fire, increased erosion, storm water runoff, and potential flood conditions; and implemented these measures to prevent further damage to people, property, and the environment.

Unlike an EIS produced in the course of routine NEPA compliance, this SEA does not include an impact assessment of alternative actions that DOE could have taken to meet its purpose and need for action. Nor does it include an assessment of the No-Action Alternative. Furthermore, DOE will not issue a formal record of decision (ROD) based on this SEA analysis. Actions not included in this SEA analysis will be the subject of other NEPA reviews and analyses. Specifically, certain actions (such as replacement of experimental equipment and construction of a new emergency operations center building) are expected to be proposed soon that may in some way relate to the Cerro Grande Fire event, but which are not necessary for the immediate protection of human life or property. DOE has adequate time in which to undertake the routine NEPA compliance process for these proposals.

This SEA does not include an analysis of the impacts that resulted from the Cerro Grande Fire itself. Fire impacts at LANL are to be documented in other reports. This SEA also does not address the potential impacts that could result from erosion and floods at LANL should these occur beyond the design function of the engineered structures installed at LANL and analyzed herein. In the event of such a flood(s), DOE will undertake action and compliance with NEPA and other applicable environmental laws as appropriate. Documentation necessary will be prepared as needed at the time of that event.

This SEA provides the reader with an assessment of the impacts that have resulted because of actions undertaken by DOE (or undertaken on the behalf of DOE by other parties at DOE's direction or with DOE funding) to address a major disaster emergency situation. The SEA includes descriptions of the actions, the resulting impacts from the actions, mitigation measures taken for these actions that render their impacts not significant or that lessen the adverse effect of the actions, and an analysis of cumulative impacts.

Fire suppression and control actions included actions taken within LANL boundaries and within a DOE-administered tract located in Rendija Canyon. Actions were undertaken by firefighters specializing in both facility and wildland fires. These firefighters were from various local and regional areas and represented a wide variety of city, county, state, federal, and pueblo government organizations as well as small communities and other neighborhood organizations. Most of these actions occurred over large areas at LANL. Soil-disturbing activities are discussed later by watershed. Activities undertaken during the fire suppression period involved numerous LANL-wide locations. At the peak of the firefighting efforts, a total of about 1,600 firefighters and 100 pieces of firefighting equipment were present in the LANL vicinity performing fire suppression activities.

Firefighters felled trees to remove the fire's fuel sources near buildings, structures (including aboveground utility lines such as electric lines and pole structures and gas mains), access roadways, and other locations where fuel removal was deemed necessary to facilitate the firefighting goals of life and property protection. To control the advance of the fire front, firefighters constructed numerous, narrow fuel breaks to remove fuel sources. The firefighters ignited several back fires once fuel breaks had been established if site conditions were favorable. Helicopters with underslung drop buckets flew close to the tree top level at LANL and neighboring areas and dropped water on the fire. Airplanes also dropped fire-retardant slurry on the forest in advance of the fire front. Fire retardants in the form of foams were applied by handheld applicators and by truck-mounted applicators to buildings and structures, especially within the LANL technical areas (TAs) located along Pajarito Road and adjacent roads.

Post-fire actions included actions taken to allow safe reoccupancy of LANL facilities; monitoring and assessment; establishment of staging areas; removal and stabilization of contaminants and other hazardous wastes and materials; erosion control; and storm water control. Most of these actions occurred over large areas at LANL. The larger storm water control projects and contaminant removal projects are discussed by watershed.

Additionally, for all post-fire actions that required soil-disturbing activities, the individual sites were subsequently recontoured and reseeded with appropriate site-specific seed mixes. Temporary soil erosion control measures, such as silt fences, were installed to protect the sites from storm water runoff and runoff until seedlings have become established according to a Storm Water Pollution Prevention Plan that was developed for LANL actions and implemented. Activities employed a variety of standard practices such as spraying water, including use of water spray trucks, to suppress fugitive dust where necessary; restricting vehicles to established roads; restricting vehicle fueling practices to appropriately established sites away from arroyos or any drainage; removing the smallest amount of vegetation possible; limiting activities within wetlands to the extent possible; and prohibiting activities within flagged perimeters of archeological sites.

Many structures, such as transporters, trailers, sheds, storage buildings, cooling towers, pump houses, and military shelters, were damaged or destroyed by the fire as it moved over LANL. A total of 40 structures were damaged beyond reasonable repair or destroyed outright. Structures were removed using conventional heavy equipment, such

as front-end loaders, which resulted in some soil disturbance. Debris was sampled for substances regulated under the *Resource Conservation and Recovery Act* and the *Toxic Substances Control Act*, radioactive material, and New Mexico Environment Department special waste constituents before their removal and disposal at permitted disposal sites. Recyclable nonradioactive and nonhazardous materials were segregated from waste materials as much as practicable.

Hazard trees² along LANL roads and those next to buildings, structures, parking areas, and walkways were cut and removed from the site. Tree cutting activities resulted in minor surface soil disturbance, primarily at the site of each tree during the tree removal process.

Air, surface water, groundwater, soil, and produce monitoring continued as part of the post-fire actions. Approximately 30 damaged air and surface water monitoring stations were repaired or replaced. Concrete bumpers and other protective barriers have been installed around groundwater monitoring wells and other monitoring devices, as necessary, to provide protection to these structures from potential floods and damage by floating debris. New rain and stream flow gauges were installed or relocated (less than 10) as needed to monitor for flood conditions. In addition, many canyons (Los Alamos, Pueblo, Pajarito, Water, Cañada del Buey, Sandia, Potrillo, and Mortandad) were investigated to determine the movement or transport of contaminants through alluvial groundwater, surface water, ash flow, and sediments.

Burned area vegetative rehabilitation for erosion control across LANL included contour raking, seeding by hand and by air, mulching, and hydromulching. Moderately and severely burned areas were contour raked to break up the soil surface and to redirect and reduce water flow. The ground disturbance from raking was limited to the first few inches of the soil's surface. After raking, the areas were seeded by hand, by mechanical spreaders, or by small, low-flying aircraft. After seeding, straw mulch was spread by hand or by mechanical straw blowers.

The installation or replacement of similar storm water control measures, known as best management practices (BMPs), was required to protect 91 potential contaminant release sites (PRSs) that had been burned. Seventy-seven PRSs outside the burned area were also evaluated for potential accelerated actions. Culvert and drainage area clean-out activities were performed at all of the low-lying areas at LANL where storm water runoff was expected and where any inadvertent ponding of storm water might be expected from debris damming. Various flood damage control measures were installed to provide protection to electric power pole structures and other utility structures (such as electric substations, gas lines, water lines, wells and chlorination stations, sewage lift stations, and telephone and communication structures).

USACE undertook seven post-fire construction actions (summarized in Table S.1) according to stringent DOE and USACE design and construction requirements. Various

² Hazard trees are those that have been damaged and are a physical hazard to personnel or property.

material, work practices, and regulatory compliance standards were applied to the construction actions as well.

TABLE S.1—U.S. Army Corps of Engineers Fire Rehabilitation Actions

Title	Task Description	Area Impacted (ac/ha)
Weir and Sediment Trap in Los Alamos Canyon	Construct a rock gabion low-head weir structure in Los Alamos Canyon above the State Road (SR) 4 intersection with SR 502. The weir will be 10 feet (ft) (3 meters [m]) above grade and located on the downstream side of an excavated short-term detention basin to prevent sediments from migrating off LANL property. Excavated soil will be piled and sloped on the western side of the detention basin.	1.1/0.45 0.62/0.25 0.72/0.29
Reinforce Los Alamos Reservoir	Reinforce the existing embankment at the Los Alamos Reservoir by installing an articulated concrete mattress (ACM) over the upstream face top and the downstream embankment of the dam. Build a 300-ft (90-m) long access road downstream of the reservoir.	1.0/0.40 0.07/0.03
Pajarito Canyon Flood Retention Structure	Design and construct a concrete structure in Pajarito Canyon, approximately 2.0 miles (mi) (3.2 kilometers [km]) upstream of TA-18, to retain water and prevent potential downstream flooding at TA-18 and in White Rock. The flood retention structure design specifies the structure to be approximately 70 ft (21 m) above grade and 390 ft (117 m) across the width of Pajarito Canyon. The bottom of the structure will have a 42-inch (in.) (105-centimeter [cm]), non-gated drainage conduit. Normal rainfall amounts will flow through. Accumulations of water shall be retained for no longer than 96 hours and will drain naturally into existing streambeds.	9.2/3.7 2.1/.84 1.38/.55
Reinforce SR 501 Crossing at Pajarito Canyon	Grade and shape the downstream slope of SR 501 and place 6-in. (15-cm) thick shotcrete mattress for a distance of approximately 200 ft (60 m).	<0.5/<0.2
Reinforce SR 501 Crossing at Two Mile Canyon	Grade and shape the downstream slope of SR 501 and place 6-in. (15-cm) thick shotcrete mattress for a distance of approximately 200 ft (60 m). Place reinforcement matting for a distance of approximately 260 ft (78 m) adjacent to the shotcrete mattress.	<0.5/<0.2
Reinforce Anchor Ranch Road Crossing at Two Mile Canyon	Reinforce both the upstream and downstream slopes of Two Mile Canyon at the Anchor Ranch Road land bridge. Construct an emergency spillway to the south of the embankment. Modify the downstream slope to approximately a two-to-one slope.	<1.0/<0.4
Reinforce SR 501 at Water Canyon	Temporarily place six ACMs on filter fabric in severely washed out areas downstream of the embankment slope. Grade and shape the upstream and downstream slopes of SR 501, relocate previously placed ACM from the downstream slope to the upstream slope, and place shotcrete on the downstream slope for a distance of approximately 256 ft (76.8 m).	<1.0/<0.4

The 1999 LANL Site-Wide Environmental Impact Statement (SWEIS) (DOE 1999) described the existing environment of the Los Alamos area; however, the Cerro Grande Fire altered many of the existing conditions both at LANL and in the surrounding area. These effects are only partially known at this time. The SEA summarizes the environmental baseline at LANL and in the surrounding geographic areas of concern, or the region of influence (ROI) as discussed in the 1999 LANL SWEIS, changes that are expected under the Expanded Operations Alternative selected in the SWEIS ROD, and changes as a result of the fire to the extent that they are now known or estimated. The

boundaries of the ROI depend on the resource under consideration. For hydrology, for example, the ROI includes all the watersheds affected by the fire and the Rio Grande to the point where it enters Cochiti Reservoir. The ROI for environmental restoration, in contrast, consists of LANL and the area immediately downstream.

Environmental impacts are described and discussed across the various resource areas that were directly, indirectly, or cumulatively affected by DOE emergency response actions. A sliding-scale approach was employed so that environmental resources are discussed at a level of detail commensurate with the level of impacts. The primary beneficial effects of DOE's suppression activities were that the fire was extinguished, no lives were lost, and property and environmental damage was minimized. The primary beneficial effects of the post-fire activities were to restore LANL to an operating condition quickly, to rehabilitate the burned areas at LANL, and to reduce the risk of damage and protect downstream environment, operations, property, and lives and well-being of workers and residents.

The methodologies used to determine impacts in this SEA differ from typical NEPA documents because of the emergency nature of the actions actually undertaken by or on behalf of DOE. For the most part, impacts are based on events or activities that have already occurred rather than on planned or proposed actions. For example, the acreage affected by constructing the flood retention structure in Pajarito Canyon (10 ac [4 ha]) is not an estimate but the actual area disturbed. Therefore, impacts to certain resources such as the Pajarito Canyon floodplain, have already occurred and are simply reported as fact in their appropriate sections. However, the potential impact of this disturbance on other media, such as biological resources, is estimated based upon many variables in addition to habitat disturbance.

In this SEA, impacts are addressed as occurring from activities either during the fire suppression or the post-fire time period. Short-term impacts are defined as those occurring within the next five years; long-term impacts are those occurring beyond this five-year period. Furthermore, impacts are addressed as either occurring across the entire facility or within defined watersheds at LANL. The major contributors to impacts during the fire suppression were fire road or firebreak construction and tree cutting. The major contributor to impacts during the post-fire period was the construction or modification of various flood control structures, contaminated sediment removal, and demolition actions taken in certain canyon areas at or near LANL. In general, DOE actions had localized or limited individual adverse impacts and were designed to protect life and property from the effects of the fire and subsequent soil erosion and surface water runoff caused by seasonally heavy rainfalls. In this respect, the actions had a significant beneficial cumulative impact at LANL and within the ROIs for most resources.

The actions covered in this SEA encompass a wide range of activities. The individual projects had some adverse effects, such as loss of habitat for wildlife, primarily resulting from soil and vegetation removal. The beneficial impacts however, include protection of cultural resources, substantial areas of floodplains and wetlands, and government, tribal, and private property. Table S.2 summarizes the effects of the fire suppression and post-fire activities.

TABLE S.2—Summary of Impacts

Resources	Fire Suppression	Post-Fire
Land Use	No long-term changes in land use as a result of this effort. Short-term reduction in trees within LANL buffer areas. Temporary expansion of TA-49 Cache Facility for firefighters and support crews.	No long-term changes as a result of this effort. Additional removal of trees by LANL. Certain recreation trails within LANL remain closed until cleanup and flood mitigation areas are complete and vegetation is reestablished.
Geology/Soils	None of the fire suppression activities included actions that could significantly affect the local geology. Activities included construction, firebreaks, access roads, and staging areas, backfires and slurry drops that exposed mineral soil and increased the likelihood of soil erosion.	None of the post-fire activities included actions that could significantly affect the local geology of these activities, only the soil stabilization treatments are intensive or extensive enough to significantly cause soil erosion. However, the expected result of the watershed treatments is to stabilize soils and reduce surface runoff.
Water Resources	No major effects on water or surface water quality is anticipated as a result of fire suppression activities. The fire-retardant slurry used was an ammonium polyphosphate solution. Ammonium and sodium ferrocyanide can be toxic to aquatic organisms if applied to surface waters. Perennial surface water areas of Los Alamos did not burn and are not known to have received slurry drops.	No significant adverse effects to the quality or quantity of surface water or perched groundwater or springs are anticipated from post-fire actions. These actions are designed to control water flow and hold back sediment and debris. Flood retention structures that temporarily retain and then slowly release water could lead to increased short-term groundwater recharge in some locations.
Floodplains and Wetlands	Fire suppression activities had a small adverse effect on floodplains where ground-disturbing activity occurred. No fire roads or firebreaks were in wetlands, so no wetlands were affected by fire suppression activities.	The construction of seven major and numerous minor storm water control projects resulted in approximately 20 ac (8 ha) of floodplains being directly disturbed or permanently altered. These controls will protect downstream floodplains and wetlands from erosion.
Biological Resources	The fire suppression activities resulted in transient and long-term effects to biological resources. The clearing of about 130 ac (52 ha) temporarily displaced local wildlife. Use of the affected area by some bird species may be expected to decline on a local basis while other species would remain unchanged.	Post-fire activities produced an array of biological effects. In general, protection of potential threatened and endangered (T&E) species habitat from flood damage will be beneficial for T&E species and other species. However, destruction of Mexican spotted owl core nesting and roosting habitats will have a minimal long-term adverse effect.
Climatology, Meteorology, and Air Quality	The use of equipment for fire suppression activities produced criteria air pollution emissions. Because of the closure of LANL and the townsite, these emissions were roughly 20 percent to 80 percent of typical LANL vehicle traffic for a two-week period—which is a negligible adverse effect.	The adverse effects on air quality from construction activities and contaminant disturbance and removal were of short duration. Doses to the nearest offsite receptor from airborne radioactive emissions associated with work in the PRSs were estimated not to exceed 0.1 millirem.
Visual Resources	The principal effect on visual resources from fire suppression activities was the cutting of firebreaks and fire roads. This is a temporary adverse effect to visual resources at LANL.	The various construction activities had minor adverse effects on visual resources. There was short-term increased suspended particulate matter, new structures in previous minimally disturbed areas, and deposition of black sediment where runoff accumulates behind storm water control structures.

TABLE S.2—Continued

Resources	Fire Suppression	Post-Fire
Cultural Resources	The leveling of a staging area in TA-49 destroyed one and damaged two other cultural resource sites. Although this is considered an adverse effect, these three sites constitute less than one percent of the total LANL archaeological sites.	Post-fire activities resulted in adverse impacts to two significant historic structures at TA-02. Although UC cultural resource specialists documented the buildings before they were dismantled, the removal of the buildings is considered an adverse impact. Post-fire activities also created a beneficial impact by reducing the likelihood that other cultural properties would be adversely affected by erosion.
Utilities and Infrastructure	The fire suppression activities had a temporary beneficial effect on water, gas, and electric utilities at LANL by minimizing damage from the fire. About 30 mi (48.3 km) of new or upgraded access roads were bladed, although most of these were of temporary nature so effects were also temporary.	Beneficial impacts occurred from the installation of flood control and flood retention structures. Major benefits include improved access, maintenance, and protection from damage to both utilities and infrastructure at LANL.
Socioeconomics	No substantial changes to either the local or regional populations or economics are expected as a result of fire suppression activities.	No substantial changes to either the local or regional populations or economics are expected as a result of post-fire mitigation activities.
Noise	Actions authorized by DOE during the fire suppression period had a minimal effect on the types of noise and the typical noise levels found at or in the vicinity of LANL. These activities were temporary and during the period when LANL and the townsite were evacuated.	The types of noise from post-fire response actions were typical of on-going construction activities and maintenance operations routinely performed at LANL. Noise levels increased in and around LANL during this period.
Environmental Justice	The fire suppression activities had no disproportionately high and adverse human health or environmental effects on minority and low-income populations.	Post-fire activities will have a positive effect on environmental justice issues as the risk of soil erosion and flood damages are significantly reduced to downstream communities.
Human Health	Fire suppression activities had a minimal to moderate adverse effect on emergency response workers health due to exposure to smoke and fire, firefighting hazards, and exposure to chemicals used. A potentially significant benefit to public health was the prevention of further spread of the fire to additional residential areas.	Effects on worker health that resulted from post-fire activities were less than or similar to those that occurred during the fire suppression period. Workers were not exposed to fire and smoke, but continued to be exposed to other hazards, such as the removal of vegetation, construction activities, helicopter, and vehicle traffic. There was one reported worker injury from a fall associated with managing inventories for aerial seeding operations. The worker is expected to fully recover.
Environmental Restoration and Waste Management	There were no effects (due to no activity) on environmental restoration and risk management from fire suppression activities.	BMPs for 91 PRSs affected by the fire were completed. As of July 21, 2000, 47 accelerated actions were either in progress or had been completed. DOE actions taken during this period resulted in the generation of additional low-level radioactive waste sent to TA-54 and nonhazardous solid waste sent to approved landfill sites.

TABLE S.2—Continued

Resources	Fire Suppression	Post-Fire
Transportation	Effects on both the regional and internal LANL transportation system as a result of fire suppression were minimal. Some limited-period road closures were necessary during this period to prevent access to LANL and to adjacent communities for safety and security purposes.	Effects on both the regional and internal LANL transportation system were minimal. Some limited-period road closures were necessary during this period to support repair work and replacement of culverts, delivery of construction material, and to allow for movement of hazardous material.

DOE and UC maintain regulatory compliance with environmental laws and regulations as an integrated element of conducting work at LANL. The processes used during the response to the Cerro Grande Fire have continued to ensure compliance and improve the relationships with the regulatory and consulting agencies. Because emergency actions needed to be implemented immediately, DOE and UC initiated emergency permit processes and consultations under appropriate regulations. DOE, UC, and USACE entered into a memorandum of understanding to ensure that all parties maintained environmental compliance during the emergency. Routine compliance processes will continue for non-emergency actions and will be the only compliance processes conducted after actions taken under emergency permits and consultations are completed before or by November 30, 2000.

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for the Department of Energy,
National Nuclear Security Administration,
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DOE/SEA-03

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ACRONYMS AND ABBREVIATIONS

ac	acres	m ³ /h	cubic meters per hour
ACHP	Advisory Council on Historic Preservation	m ³ /s	cubic meters per second
AEI	area of environmental interest	MDA	material disposal area
ACM	articulated concrete mattress	mi	miles
AOCs	areas of concern	μg/m ³	micrograms per cubic meter
BAER	Burned Area Emergency Rehabilitation	MOU	memorandum of understanding
BMP	best management practice	mrem	millirem
CEQ	Council on Environmental Quality	NEPA	National Environmental Policy Act
Ci	curies	NHPA	National Historic Preservation Act
cm	centimeters	NMED	New Mexico Environment Department
DARHT	Dual-Axis Radiographic Hydrodynamic Test	NPDES	National Pollutant Discharge Elimination System
DOE	(U.S.) Department of Energy	NRHP	National Register of Historic Places
EA	environmental assessment	PCBs	polychlorinated biphenyls
EIS	environmental impact statement	the Plan	the LANL Emergency Rehabilitation Project Plan
EPA	Environmental Protection Agency	PM-10	particulate matter smaller than 10 microns
ERT	(LANL) Emergency Rehabilitation Team	PRs	potential contaminant release sites
ft	feet	RCRA	Resource Conservation and Recovery Act
ft ²	square feet	RLW	radioactive liquid waste
ft ³	cubic feet	ROD	record of decision
ft ³ /s	cubic feet per second	ROI	region of influence
FY	fiscal year	SEA	special environmental analysis
gal.	gallons	SHPO	State Historic Preservation Office
ha	hectares	SR	State Road
HSWA	Hazardous and Solid Waste Amendments	SWEIS	site-wide environmental impact statement
in.	inches	SWPP	Storm Water Pollution Prevention (Plan)
km	kilometers	t	metric tons
l	liters	T&E	threatened and endangered (species)
LAAO	Los Alamos Area Office	TA	technical area
LANL	Los Alamos National Laboratory		
m	meters		
m ²	square meters		
m ³	cubic meters		

TCPs	traditional cultural properties	USACE	(U.S. Army) Corps of Engineers
TSSs	total suspended solids	USFWS	U.S. Fish and Wildlife Service
UC	University of California	USLE	universal soil loss equation
U.S.	United States	yd ³	cubic yards

EXPONENTIAL NOTATION: Many values in the text and tables of this document are expressed in exponential notation. An exponent is the power to which the expression, or number, is raised. This form of notation is used to conserve space and to focus attention on comparisons of the order of magnitude of the numbers (see examples):

1×10^4	=	10,000
1×10^2	=	100
1×10^0	=	1
1×10^{-2}	=	0.01
1×10^{-4}	=	0.0001

Metric Conversions Used in this Document

Multiply	By	To Obtain
Length		
inch (in.)	2.50	centimeters (cm)
feet (ft)	0.30	meters (m)
yards (yd)	0.90	meters (m)
miles (mi)	1.60	kilometers (km)
Area		
acres (ac)	0.40	hectares (ha)
square feet (ft ²)	0.09	square meters (m ²)
square yards (yd ²)	0.80	square meters (m ²)
square miles (mi ²)	2.60	square kilometers (km ²)
Volume		
gallons (gal.)	3.80	liters (L)
cubic feet (ft ³)	0.03	cubic meters (m ³)
cubic yards (yd ³)	0.76	cubic meters (m ³)
Weight		
ounces (oz)	29.60	milliliters (ml)
pounds (lb)	0.45	kilograms (kg)
short ton (ton)	0.90	metric ton (t)

1.0 PURPOSE AND NEED

1.1 Introduction

The U.S. Department of Energy (DOE), National Nuclear Security Administration, is issuing this special environmental analysis (SEA) to document its assessment of impacts associated with emergency activities conducted at Los Alamos National Laboratory (LANL), Los Alamos County, New Mexico (Figure 1.1), in response to major disaster conditions caused by the recent wildfire known as the Cerro Grande Fire. This wildfire burned about 7,650¹ acres (ac) (3,061 hectares [ha]) within the boundaries of LANL and about an additional 35,500 ac (14,200 ha) in neighboring areas (Figure 1.2). DOE's emergency response to the threat of this fire began with certain preventative actions undertaken immediately before the wildfire entered LANL boundaries in early May 2000. DOE's subsequent actions include those taken to suppress the fire while it burned within LANL boundaries, as well as post-fire activities taken to address the extreme potential for erosion and flood damage at LANL and properties downstream from the facility.

1.1.1 Need for Agency Action

A number of significant events occurred that resulted in DOE's need to take action in response to the Cerro Grande Fire (Appendix A). On the evening of May 4, 2000, employees of the Department of the Interior, National Park Service, Bandelier National Monument, ignited a prescribed burn in a forested area within the boundaries of Bandelier National Monument along a mountain slope of the Cerro Grande. This fire was quickly pushed by winds outside the boundaries of the prescription area and was declared by the National Park Service to be a "wildfire" on May 5, 2000. The fire spread rapidly in a generally northeastern/eastern direction across land administered by the Department of Agriculture, Forest Service, Santa Fe National Forest. Starting late on May 7, through May 8 and 9, while winds were somewhat moderate, shrubs and trees were cut and back fires were ignited in an effort to hold the fire line at New Mexico State Road (SR) 501, which is located at the northwestern side of LANL. A very narrow strip of land a few hundred feet wide within that back fire area is administered by DOE as a part of LANL. The wind speed increased dramatically on May 10, 2000, and spread embers over a mile in advance of the wildfire fronts and well beyond the established fire lines, igniting forested areas within the heart of LANL and residential areas within the Los Alamos townsite located nearby. From May 10 until about May 17, the fire burned within LANL and the townsite area (Photo 1.1) before it was stopped and considered contained. In the wake of this fire, about 43,000 ac (17,200 ha) of forest burned along the mountain flanks within, above, and to the north of LANL. Over 200 residential units occupied by over 400 families burned within the Los Alamos townsite (Photo 1.2).

¹ This number of acres is an estimate based on data derived from the Burned Area Emergency Rehabilitation (BAER) Team Report (BAER 2000). It does not include DOE administered lands in Rendija Canyon since these are not part of LANL. Any differences in acres affected among the BAER Report, other published sources, and this document are the result of data entry variations or rounding differences and are not intended to indicate significant differences.

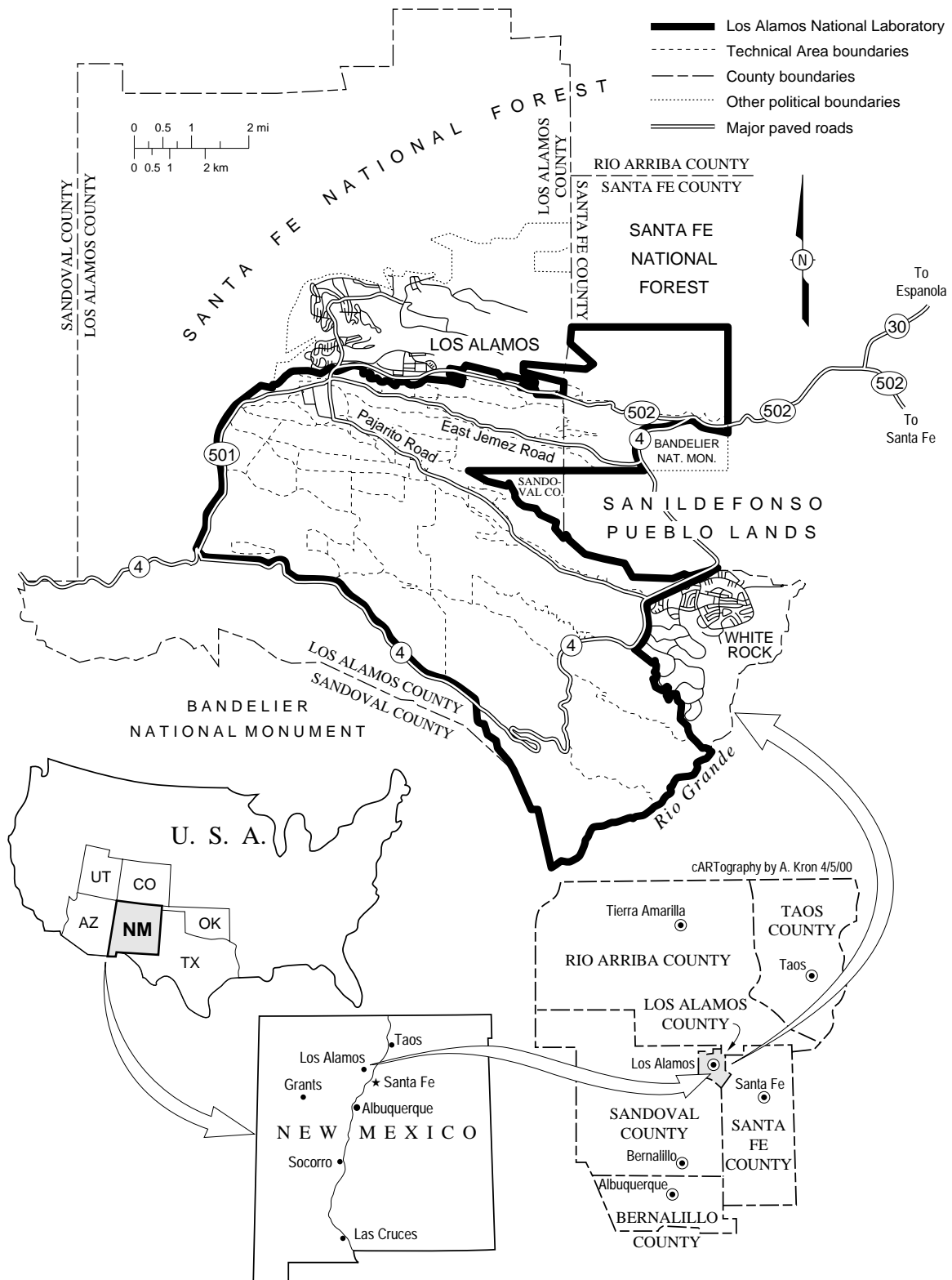


FIGURE 1.1—Location of Los Alamos National Laboratory

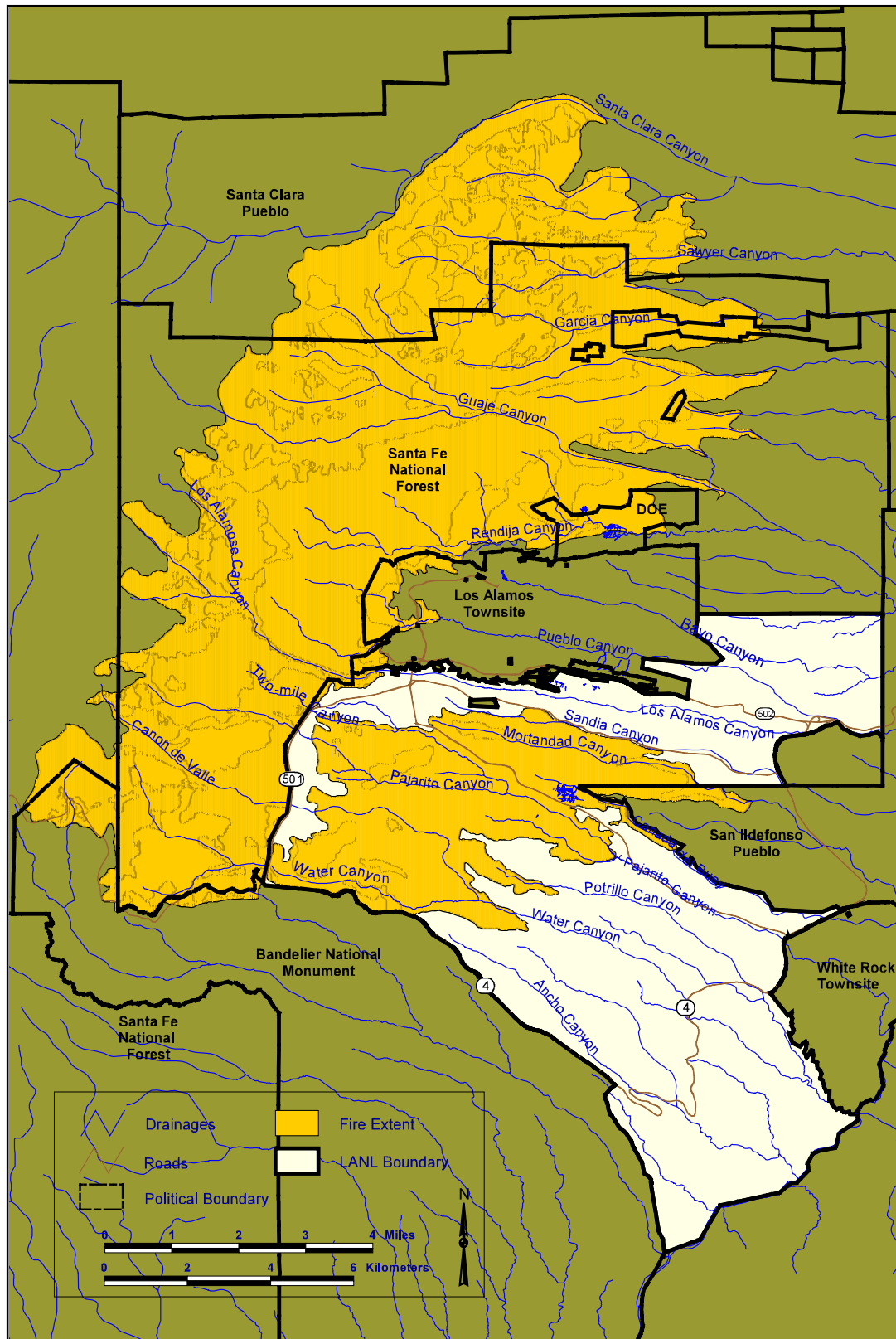


FIGURE 1.2—Extent of the Cerro Grande Fire



PHOTO 1.1—*Cerro Grande Fire at LANL May 11, 2000*



PHOTO 1.2—*Cerro Grande Fire Damage to Los Alamos Townsite May 12, 2000*

The Cerro Grande Fire resulted in more property loss than any other wildfire in New Mexico's recorded history. This fire also consumed enough forest acreage to make it the second largest wildfire in New Mexico's recorded history. As a result of this wildfire event, DOE identified the need to take actions on an emergency basis to protect human life and property. DOE considered that its actions should not just be protective of the lives of its employees, contractors, and subcontractors, but also the lives of all people living and working in the LANL region. DOE also considered that its actions should not just protect property belonging to the U.S. Government, but also the properties of neighboring and downstream landowners and residents. These end goals were approached through direct fire suppression and fire control actions; through the subsequent restoration of LANL facilities and structures to accommodate the resumption of human occupancy; and through a wide variety of actions undertaken to reduce the potential for significant storm water flood damage, including revegetation efforts and the development of constructed storm water control features. This SEA discusses all of these actions in detail in later sections.

1.1.2 Regulatory Framework

DOE would normally prepare an environmental impact statement (EIS) in compliance with the *National Environmental Policy Act of 1969* (NEPA), as amended, to analyze potentially significant beneficial or adverse impacts that could occur if a proposed action(s) was implemented. A draft EIS would be issued for stakeholder and public review and comment pursuant to the Council on Environmental Quality's (CEQ's) NEPA Implementing Regulations (40 CFR Parts 1500–1508) and DOE's NEPA implementing regulations (10 CFR Part 1021). After DOE received and incorporated comments, DOE would issue a final EIS, followed no sooner than 30 days later by a record of decision (ROD). This EIS process takes DOE an average of about 30 months to complete.

However, because of the urgent nature of the actions required of DOE to address the effects of the Cerro Grande Fire as it burned over LANL and the need for immediate post-fire recovery and protective actions, DOE had to act immediately. DOE was, therefore, unable to comply with NEPA in the usual manner. DOE thereby invoked the CEQ's emergencies provision of its NEPA Implementing Regulations (40 CFR Part 1506.11) and the emergency circumstances provision of DOE's own NEPA implementing regulations (10 CFR Part 1021.343(a)). Pursuant to those provisions, DOE consulted with the CEQ in May and early June about alternative arrangements with regard to NEPA compliance for its emergency actions. Consistent with agreements reached during those consultations (see Appendix A), DOE has prepared this SEA of known and potential impacts from wildfire suppression, post-fire recovery, and flood control actions as part of the alternative arrangement contemplated by the CEQ regulation. Additionally, on June 21, 2000, DOE published a Federal Register notice (see Appendix A) in which DOE disclosed the actions it had taken and foresaw taking, together with its intention to prepare this SEA and its estimate of potential impacts (as they were understood at the time). DOE also used that Federal Register notice to issue a public notice and statement of findings regarding DOE's intention to take action involving construction and other activities within floodplains and wetlands pursuant to

DOE's regulations for Compliance with Floodplains/Wetlands Environmental Review Requirements (10 CFR Part 1022). DOE did not receive any comments on the notice.

1.1.3 Public Involvement

Public involvement for the alternative arrangements included public and stakeholder meetings, informational announcements and fact sheets, newspaper articles, and web site postings. Three public and stakeholder meetings were held by the Forest Service at which technical specialists discussed fire related issues of concern with the public that included regulatory compliance issues. These meetings were held on June 1, 2, and 7, 2000, at Los Alamos, Santa Clara Pueblo, and San Ildefonso Pueblo. At those times, DOE announced its discussions with the CEQ and its proposal to issue an SEA as part of its alternatives arrangements for NEPA compliance with regards to its fire suppression actions taken and other anticipated connected actions. Public meetings were held by DOE in Los Alamos for the purpose of discussing with and updating the public and stakeholders on actions taken and actions planned at LANL on a weekly basis beginning on June 30 and continuing through August 11, 2000. The first three meetings were broadcast live over a local AM radio station (KRSN) that serves the Los Alamos County area. Similar monthly meetings will be held beginning on September 15, 2000, and continuing through the end of the year or beyond as needed. A Public Advisory Group was also established that focuses specifically on communications issues as they relate to potential runoff and flood mitigation activities. DOE has also provided information about its NEPA compliance process in meetings with the local Pueblo tribal leaders, and in notification letters regarding the SEA preparation sent to the State, pueblos and tribes, and other various identified interested parties. A link to the Federal Register notice is also posted on the DOE NEPA internet website and on the LANL website under "Cerro Grande Fire Info" (the UR is <http://www.lanl.gov/labview/>).

Upon issuance of the SEA, DOE will distribute the document to stakeholders and members of the public, make the document available at local public DOE reading rooms, and will place the document on the internet websites noted above. An announcement of its availability will be made in local newspapers and will be broadcast by KRSN. Meetings with the governors of the four Accord Pueblos² are planned to discuss the SEA and further mitigation measures in late September and early October 2000. The monthly DOE hosted public meetings in September and October will provide the public with information of the SEA's availability and provide an opportunity to comment on mitigation measures proposed and to suggest other additional measures for DOE's consideration.

The SEA encompasses the time from the initiation of fire control measures in the first week of May 2000 until the end of November 2000. The reason for the extended activity time frame is that rain typically falls in Los Alamos County from about June through

² Accord refers to the written agreements signed by DOE and the Jemez, Cochiti, Santa Clara, and San Ildefonso Pueblos on December 8, 1992, stating the basic understanding and commitments of the parties and describing the general framework for working together. Subsequently, cooperative agreements between each Pueblo and DOE, and between each Pueblo and the UC have been signed, which specify further details related to the accord agreements.

October, with over half of the annual rainfall amounts usually occurring during the months of July and August. Depending upon actual weather conditions, the completion of some of the activities planned for wetland and floodplain locations might be delayed until the rainy season has abated and site conditions allow the work to proceed to completion. Additionally, after review of actual rain conditions, some additional work may be required to prepare the LANL facility for subsequent seasonal precipitation.

1.2 Cerro Grande Fire Effects and Risks

LANL is a federal facility employing about 12,000 persons in northern New Mexico and comprising about 27,690 ac (11,076 ha) that is administered by DOE. It is located in north-central New Mexico on the Pajarito Plateau in a region characterized by forested areas with mountains, canyons, and valleys, as well as diverse cultures and ecosystems. The Pajarito Plateau is a volcanic shelf on the eastern slope of the Jemez Mountains at an approximate elevation of 7,000 feet (ft) (2,100 meters [m]). This plateau is dissected by 13 steeply sloped and deeply eroded canyons that have formed isolated finger-like mesas oriented in a west to east direction. Land management practices employed by the various land stewards in the vicinity of LANL during the last 50 years have been characterized by severe reductions in cattle grazing and timber cutting in the area, as well as by artificial (institutionalized) fire suppression efforts. The most obvious effects of these practices have been an intense increase in overall tree stand densities, tree continuity, and overall fuel loading within the forested areas, with a corresponding decrease in understory ground cover. The heavily forested areas within and surrounding LANL before the Cerro Grande Fire were generally overgrown with dense stands of unhealthy trees with excessive amounts of standing and fallen dead tree material. Over the past decade, local community leaders and government land stewards have recognized that forest conditions presented an extreme wildfire hazard to LANL, to Los Alamos County residents (nearly 18,000 people), and to other nearby land owners, residents, and communities. Adequate funding and other resources, however, were not available to agencies and individuals to immediately alleviate this hazard.

The Cerro Grande Fire created large areas of burned vegetation, including areas of bare ash along the steep slopes and canyon sides above and within LANL (Photo 1.3). Areas within the fire's perimeter burned with high, moderate, and low severities (Figure 1.3). Burn severity is a relative measure of the degree of change in a watershed that relates to the severity of the effects of the fire on watershed conditions. About 34 percent of the total area burned by the Cerro Grande Fire burned at a high-burn severity (Photo 1.4), and about 8 percent burned at a moderate-burn severity (Photo 1.5). Additionally, about 58 percent burned at a low-burn severity (Photo 1.6) or was skipped over by the flames leaving "islands" of green vegetation within the overall perimeter of the burned area. Most LANL acreage burned with a low-burn severity, with only small areas of high-burn severity and moderate-burn severity. Specifically, about 88 percent of the LANL area that burned did so with low-severity consequences, 11 percent with moderate severity, and less than 1 percent with high-severity results. The vegetation mortality



PHOTO 1.3—*Upper Los Alamos Canyon and Los Alamos Reservoir after
the Cerro Grande Fire*



PHOTO 1.4—*Example of High-Severity Burn (Inset: High-Intensity Crown Fire)*

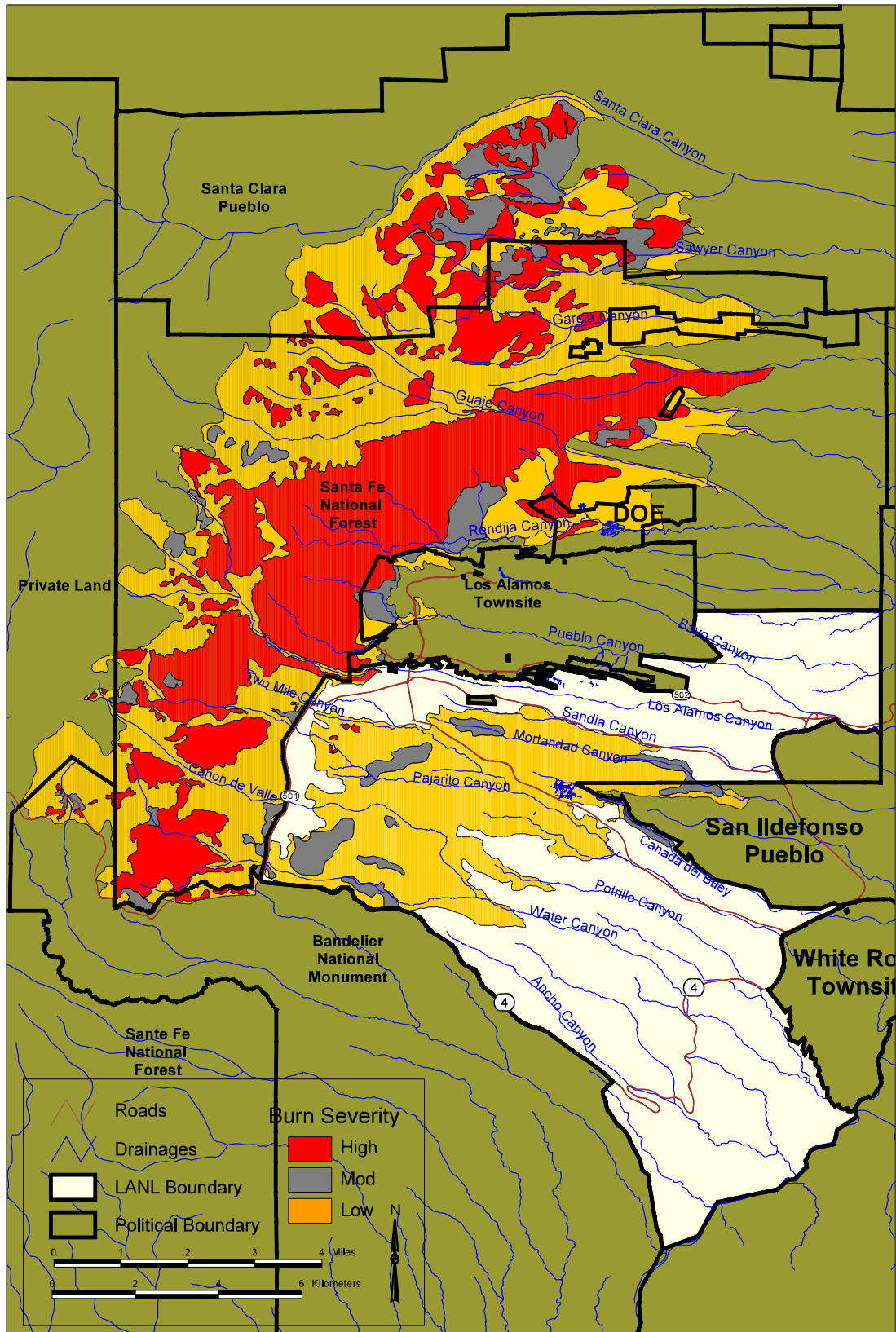


FIGURE 1.3—Burn Severity Categories within the Region of Influence (ROI)



PHOTO 1.5—*Example of Moderate-Severity Burn*



PHOTO 1.6—*Example of Low-Severity Burn (Inset: Low-Intensity Fire)*

classifications³ generally correspond with the levels of burn-severity ratings. Overall, the surface soil properties on sites with high-burn severity were altered. The soil structure broke down and a hydrophobic layer that resists water penetration was established. These characteristics allow for rain-impact surface soil erosion, reduced water infiltration into the soil, and a severe increase in soil erosion and runoff during storm events. Similarly, areas with a moderate-burn severity have potential for additional soil erosion above their pre-burn soil erosion rates. Seed resources are adversely affected by high- and moderate-burn severity fires, which may impede the ability of vegetation to be naturally restored after a fire.

Post-fire conditions present along the hills and ridges at elevations above LANL, as well as within LANL, pose a very high risk for erosion and flood damages at the LANL facility and to nearby residential communities downstream all the way to the Rio Grande. This high risk for flooding also exists for Los Alamos townsite located north of LANL, as well as for Pueblo lands and residences located downstream of the townsite. Seventy-seven potential contaminant release sites (PRSSs) and two nuclear facilities at LANL that contain hazardous and radioactively contaminated soils and materials are located within floodplain areas. Without DOE action, these PRSSs and nuclear facilities have the potential to release contaminants and materials downstream. Numerous cultural resources sites and traditional cultural properties (TCPs) are located in canyon areas or along drainages. These sites are now at increased risk of flood damage. Each canyon also provides potential habitat for federally-listed threatened and endangered (T&E) species, which could be affected as well. Canyon storm water discharge flow measurements for a six-hour storm event with a once-in-100-year return rate at LANL typically are in the range of about 35 to 590 cubic feet per second (ft³/s) (1.05 to 17.7 cubic meters per second [m³/s]); post-fire modeling estimates the canyon discharge flows (before rehabilitation work) to be in the range of 90 to 3,276 ft³/s (2.7 to 98.3 m³/s) for the same duration storm events. Some canyons are expected to have even greater flow amounts over some areas because of location-specific site conditions after the fire. While the rehabilitation actions (e.g., raking, seeding, and mulching) undertaken by the Forest Service on the forests above LANL may reduce the severity of floods onto LANL, the actions are only expected to maximally reduce the storm water discharge onto LANL by about 30 percent during the first year after the fire (BAER 2000). The potential for flooding onto and across LANL will exist for the next several years to decades in some locations until enough vegetation is established to cover the hillsides and canyons to act as a sufficient deterrent to the soil erosion and flooding threat.

1.3 Purpose of This Document and Related NEPA Analyses and Other Documents

This SEA provides the reader with an assessment of the impacts that have resulted because of actions undertaken by DOE (or undertaken on the behalf of DOE by other parties at DOE's direction or with DOE funding) to address a major disaster emergency situation. The SEA describes the actions, identifies impacts resulting from the actions,

³ Vegetation mortality classifications (BAER 2000:371) were developed to quantify impacts to vegetation: Class 1: 0 – 10 percent vegetation mortality, Class 2: 10 – 40 percent vegetation mortality, Class 3: 40 – 70 percent vegetation mortality, Class 4: 70 – 100 percent vegetation mortality.

describes mitigation measures taken that render impacts of these actions not significant or that lessen the adverse effect of the actions, and analyzes cumulative impacts.

Decisions to undertake actions were made by DOE through a working team known as the LANL Emergency Rehabilitation Team (ERT). The ERT consists of DOE and teams from both the University of California (UC) (as the management and operations contractor for LANL) and the U.S. Army Corps of Engineers (USACE), working jointly in support of DOE. USACE worked under an Interagency Agreement (DEAI04-00AL79799) with DOE to construct engineer-designed storm water structures in the field. The ERT evaluated and estimated the impacts from the Cerro Grande Fire; identified and designed appropriate mitigation measures for increased erosion, storm water runoff, and potential flood conditions; and implemented these measures to prevent further damage to people, property, and the environment. The ERT selected a subset of the actions discussed in the June 21, 2000, Federal Register notice (see Appendix A) for implementation. A written plan, the LANL Emergency Rehabilitation Project Plan (the Plan) was first issued on July 7, 2000, (LANL 2000a) and subsequently updated on August 11, 2000.

A range of data points and prediction models were used to assist the ERT in reaching decisions regarding actions to be implemented at LANL. At first, decisions were made largely based on recommendations from the Forest Service's BAER Team (BAER 2000). The BAER Team is a multidisciplinary team experienced in fire recovery planning and in implementation of erosion and flood control measures. As data and information became available or were developed, the ERT used predictive modeling specific to the LANL site in the ERT decision process. Decisions were reached regarding the larger engineered structures after weighing the advantages and disadvantages of several technical and locational alternatives as well as the alternative of not taking any action within specific canyon reaches. These decisions took into account a variety of different factors, including cultural resource locations; T&E species potential habitat conditions; PRSs; information on contaminants within canyon reaches; potential storm water flow rates; canyon contours and land form conditions; potential silt and debris flow accumulations; implementation time and difficulties; engineering uncertainties; water quality estimates downstream from LANL; and other factors, including costs. Actions undertaken through the ERT have been coordinated with the four Accord Pueblos and federal, state, and local stakeholders, including the U.S. Department of the Interior (National Park Service and Bureau of Land Management); U.S. Department of Agriculture (Forest Service); the Environmental Protection Agency (EPA); the Federal Emergency Management Agency; the State of New Mexico (Department of Health, Engineer's Office, and Environment Department [NMED]); and the Incorporated County of Los Alamos, Santa Fe County, and other surrounding counties. In some cases, DOE modified possible actions based upon information or concerns expressed by one or more of these parties. Actions included in the Plan have for the most part already been completed or are underway and will be completed soon.

Unlike an EIS produced in the course of routine NEPA compliance, this SEA does not include an impact assessment of alternative actions that DOE could have taken to meet its purpose and need for action. Nor does it include an assessment of the No-Action

Alternative. Furthermore, DOE will not issue a formal ROD based on this SEA analysis. Actions not included in this SEA will be the subject of other NEPA reviews and analyses. Specifically, certain actions (such as replacement of experimental equipment and construction of a new emergency operations center building) are expected to be proposed soon that may in some way relate to the Cerro Grande Fire event, but which are not necessary for the immediate protection of human life or property. DOE has adequate time in which to undertake the routine NEPA compliance process for these proposals.

This SEA does not include an analysis of the impacts that resulted from the Cerro Grande Fire itself. Fire impacts at LANL are to be documented in other reports. A special edition of the LANL Site-Wide Environmental Impact Statement (SWEIS) Yearbook entitled *Wildfire 2000* (LANL 2000b), was issued recently by UC (LA-UR-00-3471; <http://lib-www.lanl.gov/la-pubs/00393627.pdf>). This document compares the postulated accident analysis provided in the 1999 LANL SWEIS (DOE 1999) with the actual wildfire. Future issues of the LANL SWEIS Yearbook will include information and updates on the impacts of the fire and changes to the ecological setting at LANL, as well as cumulative fire effects information. Pursuant to DOE's NEPA implementing regulations (10 CFR Part 1021.330 (d)), DOE will evaluate the 1999 LANL SWEIS in or before 2004, by means of a supplement analysis to determine if the existing EIS remains adequate or whether to prepare a new SWEIS or supplement the existing EIS, as appropriate. The effects of the Cerro Grande Fire will be considered in this five-year evaluation process for the SWEIS. Also, the BAER Team published a rehabilitation plan in June 2000, the *Cerro Grande Fire Burned Area Emergency Rehabilitation Plan* (BAER 2000), which included information on the effects of the fire, the risks of future flooding downstream along the canyons trending across the Cerro Grande Fire burned area, and recommended storm water control measures. The initial fire rehabilitation efforts for all the involved government agencies with lands affected by the Cerro Grande Fire were coordinated by the BAER Team. This rehabilitation plan presents only limited and preliminary information about the fire's specific effects on LANL and about the fire suppression actions taken there. The BAER Team plan also presents limited information on the potential erosion and flooding risks at LANL and the storm water control measures to be implemented. The BAER Team did not focus its efforts on LANL because of its lack of experience with facilities that involve the use or storage of radioactive materials and with facilities that have radioactively contaminated PRSs in the environment. Another report that will include information and analysis of the impacts of the Cerro Grande Fire is the LANL *Environmental Surveillance and Compliance at Los Alamos During 2000*. This annual report will include information about the fire and subsequent environmental changes that result to the various media included by the surveillance and compliance program.

Resource management plans produced by DOE and UC over the next five years will include information about the Cerro Grande Fire. Management plans recently implemented or under development at the time of the Cerro Grande Fire are being revised to include the effects of the Cerro Grande Fire on their respective resources. These include plans required by the DOE's Dual-Axis Radiographic Hydrodynamic Test (DARHT) Facility EIS and the SWEIS Mitigation Action Plans (such as the Threatened

and Endangered Species Habitat Management Plan and the Cultural Resources Management Plan).

Other related NEPA compliance documents will discuss aspects of the existing post-fire environment. DOE recently issued a final environmental assessment (EA) and finding of no significant impact on its proposed Wildfire Hazard Reduction and Forest Health Improvement Program for LANL on August 10, 2000. In late 1999, DOE notified LANL stakeholders, including local pueblos and tribes and various identified interested parties, of its intent to prepare an EA for a proposed wildfire hazard reduction program at LANL. This draft EA was scheduled for release to stakeholders and the public for review during the week of May 8, 2000; however, with the advent of the Cerro Grande Fire, this draft document was not released as scheduled. After the Cerro Grande Fire was contained within LANL, DOE revised the draft EA to include the effects of the fire and finally issued the draft EA in July 2000. This long-term management program will allow DOE to thin forest vegetation to an appropriate level and then maintain it at that level to accomplish both the reduction of wildfire hazards and to improve the overall health of the forest resources at LANL. This EA did not include the analyses of any of the environmental impacts resulting from DOE's emergency actions that are the subject of this SEA.

Similarly, DOE is preparing an EIS for the proposed relocation of the mission and operations currently conducted at LANL's Technical Area (TA) 18 (Figure 1.4). This EIS also will not include the analyses of any of the environmental impacts resulting from DOE's emergency actions that are the subject of this SEA. TA-18 is one of the two nuclear facilities noted previously that is located within a LANL floodplain. DOE issued a Notice of Intent to prepare this EIS in the Federal Register on May 2, 2000, and scoping meetings were held at various locations later in May 2000. The draft EIS is scheduled to be issued for stakeholder and public review and comment in late 2000; and the final EIS is also scheduled for 2000. DOE expects to issue a ROD in 2001. This SEA will only consider the impacts of moving materials around TA-18 to position them in safer locations within the TA to protect them from the possible effects of site flooding. The EIS will focus on the analyses of impacts associated with upgrading existing facilities at TA-18 and moving the TA-18 mission operations elsewhere at LANL or to another of DOE's nuclear complex facilities.

This SEA also does not address the potential impacts that could result from erosion and floods at LANL should these occur beyond the design function of the engineered structures installed at LANL and analyzed herein. In the event of such a flood(s), DOE will undertake action and compliance with NEPA and other applicable environmental laws as appropriate. Documentation necessary will be prepared as needed at the time of that event.

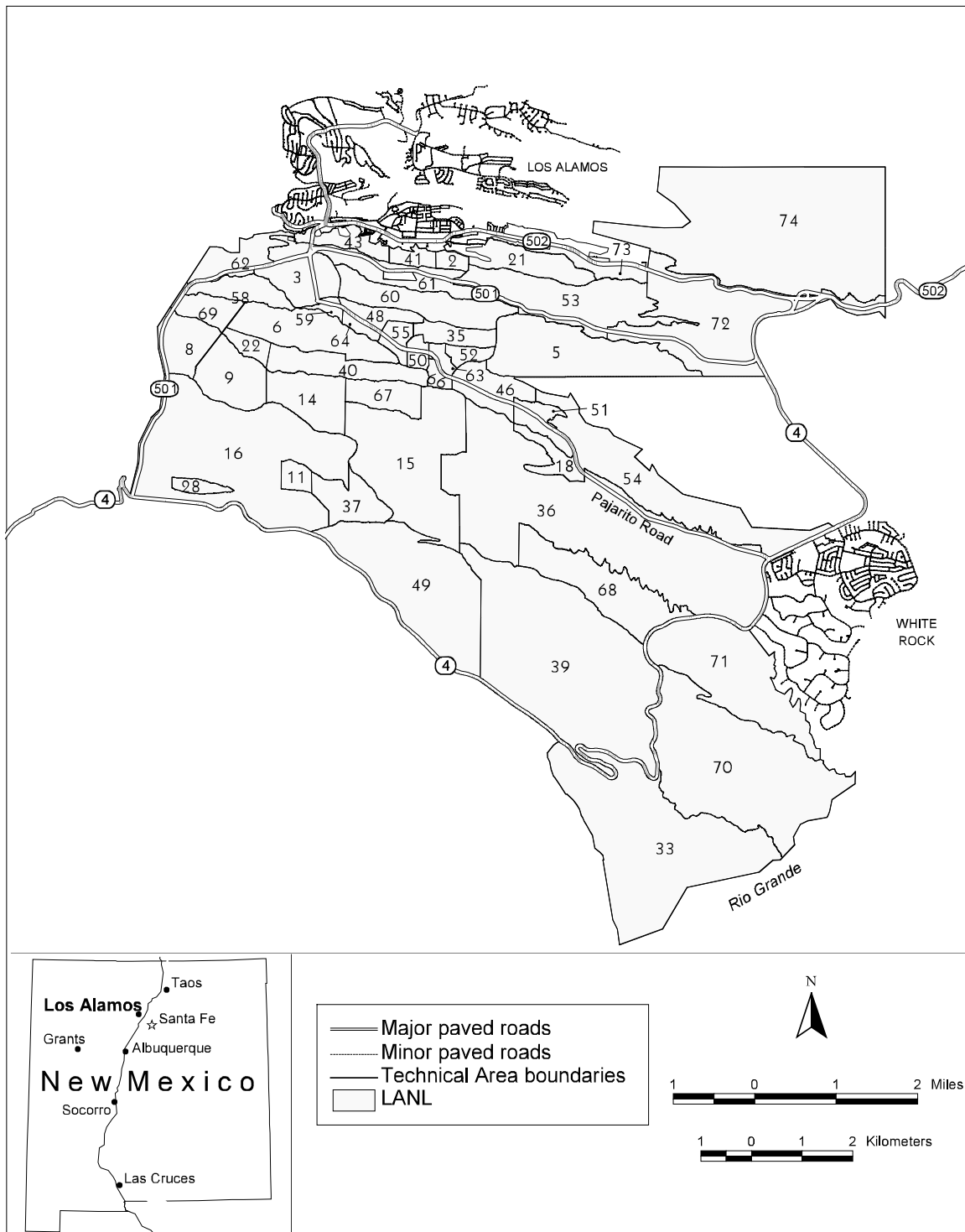


FIGURE 1.4—LANL Technical Areas

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